Liquid Swine Manure Nitrogen Utilization Project. (S08-sawyer110141-Poster)

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Abstract:

Liquid swine manure is an important nutrient source in Iowa, but one that requires improved producer confidence in crop nutrient availability and ability to maintain high yields. A multi-year project was initiated on producer fields to document application procedures (manure sampling and applicator calibration) to set manure-N rates, measure crop productivity based on manure-N, and compare response to additional fertilizer-N. Liquid swine manure from finishing facilities was applied at zero, half, and full rates of total-N (target of 0, 84, and 168 kg N per ha for corn-soybean) in replicated field-length strips. Four fertilizer-N rates were applied in small plots on top of each manure strip to measure additional N response. Manure-N content varied widely between production facilities, with manure pre-sampling providing an adequate representation of the total-N. Corn yield showed large increase to the half manure-N rate, and frequent but smaller additional yield increase with the full rate. Corn typically produced highest yield response to fertilizer-N with the zero-manure rate, frequent but smaller increase with the half-manure rate, and no response with the full manure rate. The project is documenting to producers the importance of known N analysis of each manure source before application, the need for good application calibration, and the high level of crop available-N in liquid swine manure.

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